

**Forest Management Plan
Stewardship Incentive Program
for the
Town of Bucksport
Years 2011 -2021**

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Introduction

This management plan was prepared in accordance with the guidelines of the Maine Forest Service Stewardship Incentive Program. Several parts make up this plan:

- A summary of key elements of the plan and the inventory following this introduction.
- Goals and objectives of the owner for managing the land. All recommendations are linked to these objectives and cover the next 10 years of management;
- Information about location and history of the land, listings of forested and non-forested acreage, descriptions of terrain and soils, evaluation of access to the land, observations of endangered or threatened species, insect and disease conditions, forest health considerations, and conditions of boundary lines
- Detailed descriptions of delineated stands and recommendations for the management of different aspects of the land, including estimates of basic stand parameters.

Appendices include:

- A glossary of technical terms.
- Information about wildlife and biodiversity issues.
- Information about soils found on the land.
- Information about legal restrictions and obligations, which might apply under certain circumstances.
- Other forestry related information.

Updating, changing, and adding to this management plan is highly encouraged. Planning and observation maps are provided in the appendix, to mark observations and ideas.

Forest management plans are conveniently done every 10 years, and for many years, the forest service tries to cost-shared management plans at 10-year intervals. Please call your Representatives and Senators to lobby for continued funding of forest stewardship related programs,

Forests deliver essential and mostly free services for the wellbeing of society by providing clear water and clean air, an aesthetically pleasing environment, and habitat for wildlife and game species. Society should help to pay for these services through cost-share programs.



Many trails and signs invite visitors to the Bucksport Forest

Western Parcel off Silver Lake Road.

- Continue to develop and improve the boat landing including the new parking areas, kayak and canoe launching area and picnic area.
- Establish a trail system on the property that supports walkers and operator of small recreational vehicles.
- Consider a plan to protect well established apple trees on the property
- Consider developing a walking trail that extends along the shore of Silver Lake and begins at the new proposed kayak and canoe launch area.
- Consider protecting the wet land area located at the northwest corner of the property.
- Identify areas on the property where timber harvest can occur.
- Consider forest management practices in areas that will improve the quality of timber.
- Consider developing the area across the boat landing for sledding and tobogganing.
- Trim back growth and mow on an annual basis the field area where the old homestead was once located.
- Develop a camping area across from the boat landing.
- Develop a firewood harvest operation if demand for cut yourself is developing.



Recreation is an important objective on the property. It is reflected in the many trails on the parcels.

- each parcel annually or at least as often as necessary to eliminate the reestablishment of trees and shrubs.
- 2012 Plant flowering shrubs at the edges of both fields located on each parcel.
- 2011 — 2012 Establish cleared areas on the eastern parcel to be used as remote campsites.
- 2011 Recognize the campsite located on the western parcel.
- 2012 Locate environmentally designed and innovative privies to support all campsites.
- 2012 Work with the area Boy Scout troops and other similar groups to build and install wood duck houses.
- 2011 — 2013 Locate, release and prune all apple trees.
- 2012 Establish more benches on the shore trail.
- 2012 Contract the services of a qualified botanist to conduct a plant inventory for both sites.
- 2011 Obtain the necessary permits to cut the trees and brush and remove the rock berm in order to reestablish the “old sledding slope” located on the western parcel.
- 2012 — Relocate the gate on the eastern parcel beyond the canoe/kayak access road (Red Trail) in order to allow parking in the parking area located uphill from the Red Trail.
- 2012 — 2021 Make available low grade hardwoods obtained from thinning operations to local citizens in conjunction with planned firewood days or to support designated campgrounds located on each parcel.
- 2011 Identify an area along Silver Lake that is publicly owned and is suitable for public swimming.
- 2011 Amend the existing Firearms Discharge Ordinance and Map to prohibit the discharge of a firearm on the eastern parcel. Bow hunting will continue to be permitted on both parcels.
- 2012 Designate funds obtained from the thinning operations to set up field days for winter activities and to attract mushroom hunters, bird watchers, canoeist and kayakers.
- 2012 Create more educational signs identifying plants and other worthy objects.



The slopes provide the possibility to create fantastic views over the lake and the opportunity to layout some more challenging walking trails. A few large boulders are scattered over the areas of the properties, again making the landscape more interesting to visitors but not causing problems for thinning operations. Both properties contain the top of a small gentle incline visible on the map to the right as a kind of circle of the contour lines. The highest part on the parcel east of Silver Lake is 250' along Central Street, and about 180' at the center of the forested part. The highest part on the western part is about 180' at the center of the parcel. Silver Lake is about 130' above sea level.

Interaction with Surrounding Properties

The properties are just north of Penobscot Bay with its maritime climate and its seawater fauna which extend their influence onto the properties. Immediate influence onto the properties comes from Silver Lake, a close to 800 acre lake that is also the source of drinking water for the town of Bucksport. The properties are just over 2 miles from town center, well within bicycle distance.

Most of the surrounding properties are forested. Some fields and other open areas are north of the properties. A power line, west of the properties, with its increased herbaceous vegetation and shrubs attracts song birds and other animals.



ground. This makes movement for the deer much easier and conserve the animals energy. The softwood canopy also reduces temperature drops in clear and cold winter nights, again helping the animals to conserve energy.



Darker pattern on western property is a deer wintering area.

Otherwise there are no information available at the Maine Natural Areas Program, which keeps track of endangered and threatened species and habitats.

The eastern parcel is only a stone throw north of the Miles Lane walking trails and it may not take much to create a walking connection between the properties.

Important Natural Features

The department of Inland Fisheries and Wildlife (IF&W) designated the forested part of the property on the western side of the lake (public landing side) as a deer wintering area. Deer wintering areas are characterized by mature softwood stands. The crowns intercept snow during snow falls and consequently reduce snow depth on the

This gravel road is then blocked with large boulders beyond the parking area, but the road itself continues through the middle of the parcel all the way to the lake and may be available to motorized traffic if the boulders are moved.

A second woods road enters the property from the power line close to Silver Lake Road and enters the first mentioned road north of the meadow.

A short foot path enters the property from Silver Lake Road and leads a couple of hundred feet to a canoe landing place. Otherwise there are no walking paths on the property.

An extension of the walking trail system is planned for the near future. Including a trail along the shore of Silver Lake from Silver Lake Road all the way to the northeastern end of the property.



Great hiking trail system on the eastern parcel

Planned for this parcel also are a 4-wheeler trail and a single track bike trail. Details and layout are still in the planning phase. It may be a good idea to involve members of clubs with knowledge for proper trail design and layout. In any case, care has to be taken that the trails do not cause erosion, or become a danger to visitor or trail users. A Maine Forest Service brochure called 'Best Management Practices' is an essential guide for proper trail and woodsroad design. It is included in the package with this management plan and can be viewed online at http://www.maine.gov/doc/mfs/pubs/bmp_manual.htm.

An extensive skid trail system through parts of the parcel is a reminder of the harvest that took place just before the Town of Bucksport purchased the property. Some of these skid trails or parts of the trail possibly can be re-used for the next thinning operation, or for any of the other trail projects but it is more important to find the best location for the needs of the future trail than to re-use trail which mostly were designed to get the fastest to the desired trees.



potentially great sled run and great view

A sledding and tobogganing run is planned from the heights of the meadow at the southern tip of the property into Silver Lake. This run should be coordinated also with a favorable view onto the lake and the opposite shoreline.

Eastern Parcel, Behind Town Garage

Center Street brings access to the eastern property. An excellent gravel road leads from Central Street through the Town

Garage to a small parking lot on the south side of the forest.

Hiking possibilities to the different parts of the parcel and along the lakeshore are outstanding. There are considerations to open up the property to small recreational vehicles. I would argue

Vertical Structure and Crown Closure

Vertical structure is the extent to which plants are layered within a stand. The degree of layering varies with forest type. Crown closure is the degree to which the overstory foliage fills the growing space. In many forest types, vertical structure provides a range of habitats used by different organisms. Forests that are well stratified will generally support a greater array of plant and animal species as compared to forests in which most of the vegetation is concentrated in one layer.



Many organisms in the forest use downed woody material, from microscopic bacteria and fungi to black bears

Due to the previous harvesting, the layering and canopy structure is quite good. The old skid trails are re-vegetating thereby providing food and shelter for ground dwellers. Most of the forest on the property is multi-layered and provides good conditions for a number of wildlife species.

Downed Woody Material, Snags, and Cavity Trees

Downed woody material refers to logs and slash of all decay stages. Snags are standing dead or partially dead trees that are relatively stable. Cavity trees are live or dead trees with existing cavities.

Both downed and standing woody materials are important for maintaining biodiversity because they provide habitat, at various scales, for microorganisms, insects, and a variety of vertebrates, as well as for mosses, liverworts, and some vascular plants and even other trees.

Like in almost all forests in Maine, there is a lack of large downed woody material, snags and cavity trees on the property. In previous harvests all large segments of trees had a market, and it was considered wasteful to leave anything behind to rot on the ground.

Now we know better. Rotten sections of large diameter trees are better left in the woods and not sold for low quality pulp or biomass. Snag trees should also be left in the woods whenever they do not constitute a safety hazard. Therefore, snags alongside roads or close to trails should be cut; snags in the middle of a forested section should be left standing. Especially large diameter snags are important for cavity nesting animals.

Modern harvesting machines easily can create brush piles, or once in a while bunch together a number of smaller low value trees to simulate coarse woody debris. Creating brush piles is also a rewarding project for school kids or scouts working in the woods.



This tree provided many a good meal for woodpeckers.

Mast⁵

Mast includes nuts, seeds, berries, and fruits. Nuts and seeds are referred to as "hard mast," fruits and berries as "soft mast." The mast supply can be greatly improved by thinning the

⁵ See glossary in the appendix

Another potential threat to the health of trees on the property involve hemlock and the hemlock woolly adelgid. This insect still is limited to southern Maine, but it is on its way to our area and is a serious threat to hemlock trees.

The Maine Forest Service should be contacted if hemlock woolly adelgid is observed on the property.



If lightning strikes here during a dry spell...

Protection from Forest Fire⁷

With global warming all but fact, protection from forest fire is increasingly important on woodlots. Even if global warming should result in more precipitation for our region, as some climatologists predict there still will be extreme years with record heat and drought. Fire protection is the smart thing to do. Three factors are essential in fire protection.

1. Control of the fuel load in the forest
2. Access to the forest to fight the fire.
3. A well thought out plan of actions in case of a fire.

Thinning the stands and removing dead, dying, and weak trees will reduce fuel load and thereby fire danger, especially if slash and tops are removed from site. Not to thin will slowly increase the total fuel load increasing the fire danger in the long run.

More vital trees, a result of thinning, will be able to grow their roots deeper into the soil and possibly finding water where smaller, weaker trees would dry out. Large trees also are more fire resistant than small trees. Whatever makes a tree grow faster (like thinning) will therefore help to reduce fire danger on the property in the long run.

I recommend to remove all slash and dead combustible material within 200' of any residence and to leave the slash in the rest of the parcel.

The excellent access roads to the properties and into the center of each of the properties satisfies the second of the three protection factors.

It may be wise to walk the property with representative of the fire department to check on fire places and potential camping areas on the property, to show the fire department representatives where water can be obtained on the property and to develop a plan in case of a fire.

Fire in Maine is not as common as in the western US, but Maine too had devastating large fires about a half a century ago when global warming was not as pronounced as today.

Wildlife Conditions

A Maine Audubon publication developed by Rob Bryant called "Focus Species Forestry, a guide to integrating timber and biodiversity management in Maine⁸" provides a very well rea-

⁷ Maine Forest Service forest fire emergency number 1-888-900-3473

⁸ The appendix lists the focus species on the parcel and gives detailed forest management descriptions for each of the focus species.

Aspen-Birch

Identification

Aspen-Birch forests are post-disturbance communities typically characterized by paper birch, bigtooth aspen, and trembling aspen. Depending on the region of the state and soils, associated species may include red maple, red oak, red spruce, yellow birch, sugar maple, and white pine.

Ecology

This relatively short-lived (less than 100 years) early successional forest type is dominated by shade-intolerant species that typically become established after severe disturbances such as fire or clearcutting and other forms of heavy harvests. Aspen-birch typically occurs in large patches up to several hundred acres that reflect past disturbance. On better soils this type is likely to be replaced over time by northern hardwoods. On cool and/or moist sites at high elevations or in lowlands, succession will tend towards spruce-fir.

Focus Species		Rare Species
Early Successional Forest	Mature Forest	none
Snowshoe hare Ruffed grouse Chestnut-sided warbler	Northern goshawk Ruffed grouse	Rare Natural Communities
		none

Focus Species Management	
Overview	Even-aged management is generally recommended to maintain aspen-birch forests. Alternately, landowner objectives or landscape analysis may suggest that encouraging natural succession to take place is the preferred option. When present, aspen-birch is an excellent type for developing and maintaining early successional habitat. Aspen regenerates by root suckering, while wind-blown seed is the primary method of birch regeneration. An irregular harvest that leaves unharvested patches and individual trees of long-lived species will emulate natural disturbances better than traditional even-aged management.
Single-tree and Group Selection	Avoid single-tree selection if the goal is to maintain aspen-birch. Large-group selection will sustain these species, but there will be an increasing component of more shade-tolerant species over time.
Shelterwood, Small Patch Cuts, and Clearcuts	Small patch cuts (2-5 acres), seed-tree cuts, or clearcuts are the best for regenerating aspen-birch and providing the dense regeneration preferred by ruffed grouse and woodcock. Shelterwood may result in excessive birch mortality and discourage root suckering of aspen.
Other	Refer to landscape-scale guidelines (Section 8). Use the amount of aspen-birch in the landscape and the amount of other early successional hardwoods to help decide whether to maintain aspen-birch or encourage succession to another type. Soil scarification is important for birch regeneration. Older declining aspen clones may not sprout well. Follow recommendations for snags, cavity trees, and downed woody material and other stand-level recommendations (Section 7). If the goal is to encourage succession, on better sites northern hardwoods can be favored by thinning and eventually released by removing part or all of the overstory. On poorer sites spruce and fir, which often become established in the understory, may be released as the aspen and birch mature. Try to maintain aspen inclusions in other forest types near riparian areas where beaver may be present.

Wildlife

Due to structural similarity and landscape proximity, aspen-birch forests support many of the same species as northern hardwoods in similar development stages. Depending on the time of year, ruffed grouse will use seedling, sapling, or mature stands, and aspen is the beaver's preferred food. Young aspen-birch forests are also used by woodcock for feeding and brood cover. Both aspen and birch are prone to internal decay and hence make excellent but short-lived cavity trees.

Spruce-Fir

Most of the area in both parcels can be described as spruce-fir.

Identification

Spruce-fir forests are characterized by mixtures of red spruce and balsam fir in pure stands or with other species. Common associates include yellow birch, paper birch, and other northern hardwood species as well as hemlock, northern white cedar, white spruce, and black spruce. Stands dominated by hemlock or white pine that include a strong presence of red spruce are also part of the spruce-fir ecosystem.

Ecology

Rare Species
Canada lynx
Bicknell's thrush
9 rare plants
Rare Natural Communities
Fir-heartleaved birch subalpine forest

Focus Species		
Early Successional Forest	Mature Forest	Late-successional Forest
Snowshoe hare Magnolia warbler	American marten (North region) Fisher (South Region) White tailed deer (North region) Black-backed woodpecker Redback salamander	Gray horse lichen (<i>Bryoria capillaries</i>)

Spruce-fir forests frequently share the same landscape as northern hardwoods, but are found on cooler sites — notably valley bottoms and high-elevation areas, and in a narrow band along the coast — or where soils are somewhat-poorly to poorly drained. Transitional stands may contain up to 50% hardwoods. The Maine Natural Areas Program recognizes 6 spruce-fir subtypes (see Appendix B).

Wildlife

Several species — including spruce grouse, gray jay, black-backed woodpecker, and bay-breasted, magnolia and Cape May warblers — are found almost exclusively in spruce-fir forests. Marten are strongly associated with this type, either in pure stands or in mixed hardwood-spruce-fir forests. Young spruce-fir is critical for snowshoe hare. Relatively mature to mature stands are critical deer wintering areas in northern Maine.

Riparian and Wetland Forest

Identification

Riparian and wetland forests as defined here include forests that contain or are adjacent to seasonal or permanent standing water, including small pools, seeps, intermittent and perennial streams, rivers, ponds, lakes and coastal waters. Forest types may include wetland and floodplain communities as well as upland forest ecosystems described in this manual (e.g. oak-pine, northern hardwoods, spruce-fir) that border rivers, streams, and lakes.

Ecology

Riparian and wetland forests provide several major functions, including minimizing downstream flooding, filtering runoff and protecting water quality, maintaining cool water temperatures for fish, providing the energy for the base of the aquatic food chain in the form of fallen leaves, and providing logs that create cover for fish and invertebrates and a substrate for aquatic algae.

Wildlife

These forests support an unusually high concentration of animals that includes tree-nesting waterfowl (wood duck, common goldeneye, hooded merganser, and common merganser) and other birds, as well aquatic and semi-aquatic animals such as beaver, otter, mink, and moose. Large pines provide important nesting and loafing sites for bald eagle and osprey. Upland mammals such as deer, bobcat, coyote, and bats frequently use shoreland forests often form the nucleus of large forest blocks and a network of travel corridors that are critical to many species. Up to 80% of Maine's vertebrate wildlife species use riparian habitat during some or all of their life cycle.

Focus Species⁹

Beaver
Pileated woodpecker
Northern waterthrush
Wood turtle
Northern dusky salamander
Brook trout

Rare Species

Bald eagle, Blanding's turtle, spotted turtle, box turtle, Atlantic salmon,

More than 20 rare plants, 4 insects, 2 freshwater mussels and 1 fish

Rare Natural Communities

Hardwood river terrace, hardwood seepage forest, silver maple floodplain forest, cedar spruce seepage forest

⁹ Focus species vary with water body type. See management table on following page.

Vernal Pools

Identification

Vernal pools are small (typically less than one acre) seasonal wetlands that lack perennial inlet or outlet streams and have no permanent fish populations. Most vernal pools hold at least 12 in. of water at spring maximum and contain water for 2.5 months or more in the spring and summer. Typically they dry out in late summer and begin to fill again with fall rains. The presence of a vernal pool is confirmed by spring surveys (April or May depending on weather conditions and region) for adults or egg masses of one of the four vernal pool indicator species (see Wildlife, below). In late summer or fall look for depressions with water-blackened leaves.

Focus Species are spotted salamander and wood frog. Indicator species in Maine are wood frogs, spotted salamanders, blue-spotted salamanders, and four-toed salamanders

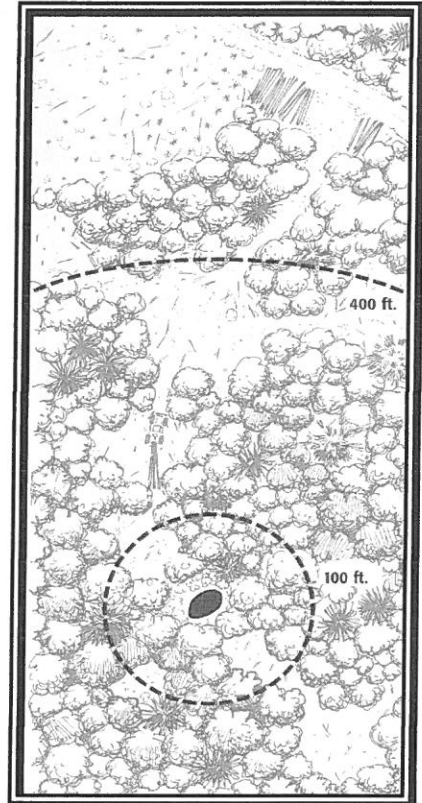
Ecology

Vernal pool amphibians lay their eggs in early spring. For the gilled tadpoles and salamander larvae it is a race against time to develop legs and lungs and migrate to the nearby forest before the pool dries. Vernal pools are largely found in forested habitats where vernal pool amphibians spend most of their lives. Most vernal pool salamanders live in the forest soil within a few hundred feet of the pool.

Wildlife

Wood frogs, spotted salamanders, blue-spotted salamanders, and four-toed salamanders are Maine's vernal pool indicator species. Fairy shrimp occur less frequently. Populations of these animals are dependent on vernal pools that are absent of predatory fish. Green frogs, spring peepers, caddis flies and rare reptiles (see below) may also be present. While most amphibians return to the pools where they were born, enough migrate to other pools to prevent inbreeding and to help sustain the population across the landscape. Adults, larvae, and tadpoles of vernal pool amphibians are an important prey base for forest animals.

Blanding's turtle (Maine threatened) and spotted turtle (Maine endangered) may be found in vernal pools in York and Cumberland counties. Four-toed salamander, ribbon snake, and wood turtle (all Maine special concern) may be found in vernal pools statewide. Several rare plants are associated with vernal pools in southern Maine



Ecologically sensitive forest management activity around a vernal pool (dark oval at bottom center). Note the decreasing harvest intensity with increasing proximity to the pool.

I recommend restricting the eastern parcel (behind town garage) to foot traffic only. **Motorized trail riding** should be limited to the **western parcel** (boat landing side). Motor noise from launching the motor boats is already considerable on that side of the lake and 4-wheeler will not significantly change the noise level in this area.



Perfect camping site already in the western parcel

In addition to a 4-wheeler trail, a **single track bike trail** may be a great attraction to invite mountain bikers into the town. This may also be an economic stimulus to the Town of Bucksport as single track bike trails attract enthusiasts from great distances. This hopefully will also attract Bucksport's youth at a time where a lack of outdoor activities takes its toll on the health of many young people. Bucksport Town Forest is within biking distance of the town forest making it an easy destination for local bikers.

To be able to create the **longest possible trail** on the property, a trail meandering along the outer edge of the property should be considered. Because of the 4-wheeler use, this trail should stay in some distance away from the shoreline and also from the forested wetland as a safeguard against erosion problems. From this 'backbone' of the trail system, shortcuts and loop trails may fork off.

Bucksport's Conservation Commission recommends a **sledding and tobogganing run** down the meadow in the western parcel. Cutting the vegetation at the end of this run also would improve the year round view over the lake and create a viewshed at the top of the incline.

This field should not only be used for sledding but also for **camping** and as an open recreational area. Trees encroaching into the field, especially the weeviled pine, should be cut and the field periodically moved.

The **eastern parcel** in contrast is still relatively quiet and tranquil and motorized access may spoil the experience for many visitors. This parcel may lend itself more to **birding, mushroom hunting, and nature watching** in general. **Guided tours** may be a way to attract young and old to use and enjoy the Town Forest. Because this parcel is close to the Bucksport schools, student activities, science classes, or outdoors club activities could be planned here.



Beautiful quiet walking path on the eastern parcel

It is planned to move the gate at the parking lot at the eastern parcel (behind town garage) further into the property and closer to the lake. A canoe launching spot is planned at that location.

At the time this plan is written, a town ordinance is still in effect prohibiting **swimming in the lake**. Efforts are underway to repeal this ordinance in a vote in summer 2012. This would greatly improve the recreational qualities of the properties.

A few, more secluded and primitive camping sites may be created possibly more towards the northern end of the parcel. Those campsites should provide a more wilderness camping experience.

wind and will help to prevent windthrow. Competition from hardwoods may require suppression by weeding and thinning to enhance the growth of softwood stands.

DbC — Dixfield fine sandy loam, 8 to 15% slopes, very stony

This very deep, strongly sloping, moderately well drained soil is on the side slopes of glacial till ridges. Slopes are smooth and convex.

This soil is well suited for hardwood production. The main limitations are plant competition and the high water table. Softwoods produce well on this soil, but require considerable management to reduce competition from other species. Plant competition will restrict natural regeneration. Windthrow hazard is moderate on this soil because the high water table and compact substratum cause trees to be shallow rooted. Harvesting to reduce the number of trees exposed to the prevailing winds helps to prevent windthrow.

DsB — Dixfield-Colonel complex, 3 to 8%

This very deep, gently sloping unit is on the crests or lower toe slopes of glacial till ridges. Dixfield soils are on knolls, upper slopes, and crests of ridges. Colonel soils are in slightly lower positions than Dixfield soils. Slopes are smooth and convex on Dixfield soils and smooth and concave on Colonel soils.

This unit is well suited for hardwood production. The main limitations of this unit are plant competition and the high water table. Softwoods produce well on these soils, but will require considerable management to reduce competition from the hardwood species. Plant competition will restrict natural regeneration in the wetter areas.



Quaking aspen on Dixfield soil

Windthrow hazard is moderate on the Dixfield soils and severe on the Colonel soils because the high water table and compact substratum cause trees to be shallow rooted. To reduce windthrow, as few trees as possible should be exposed to the prevailing winds by harvesting operations.

DtB — Dixfield-Colonel complex, 3 to 8% slopes, very stony

This very deep, gently sloping unit is on the crests or lower toe slopes of glacial till ridges. Dixfield soils are on knolls, upper slopes, and crests of ridges. Colonel soils are in slightly lower positions than Dixfield soils. Slopes are smooth and convex on Dixfield soils and smooth and concave on Colonel soils. Up to 34 percent of the surface of the unit is covered with stones.

The unit is well suited for hardwood production. The main limitations of this unit are plant competition and the seasonal high water table. Softwoods produce well on these soils, but require considerable management to reduce competition from the hardwood species. Plant competition will restrict natural regeneration in the wetter areas. Windthrow hazard is moderate on the Dixfield soils and severe on the Colonel soils because the seasonal high water table and compact substratum cause trees to be shallow rooted. To deduce windthrow, trees left in wetter areas during harvest should not be exposed to the prevailing winds.

ling mortality is moderate on the Lyman soils and severe on the Schoodic soils because of droughtiness. Windthrow hazard is severe on this unit because the very shallow and shallow depth to bedrock cause trees to be shallow rooted. Strip or clearcutting will reduce windthrow damage. Severe erosion can occur on the skid trails and roads on the steeper slopes in the unit. Erosion can be reduced by locating the skid trails and roads on the contour and by using water bars on roads. The use of equipment is difficult on the steeper slopes of the unit.

ThC — Thorndike – Winnecook complex, 0 to 15 percent slopes, very stony

This nearly level to strongly sloping unit is on upland glacial till ridges. The Winnecook soils are mainly in a slightly lower position on the landscape than the Thorndike soils. Up to 3 percent of the surface of the unit is covered with stones. Slopes are smooth and convex. This unit consists of about 45 percent shallow, somewhat excessively drained Thorndike soils; 30 percent moderately deep, well drained Winnecook soils; and 25 percent other soils.

This unit is fairly well suited for both softwood and hardwood production. On the shallow Thorndike soils and very shallow inclusions, shade-tolerant softwoods are the main tree species. On the moderately deep Winnecook soils and the deep inclusions, hardwoods are the main species. The main limitations of this unit are droughtiness and depth to bedrock. Seedling mortality is moderate on the shallow Thorndike soils because of droughtiness. Windthrow hazard is severe on the shallow Thorndike soils and moderate on Winnecook soils because the bedrock limits rooting depth. Strip cutting or clearcutting will reduce tree exposed to the wind and will help to reduce windthrow.



These beautiful large trees should on
Thorndike soils should be freed
of competition and made more visible

WkC — Winnecook-Thorndike complex, 3 to 12 percent slope

This gently sloping to strongly sloping unit is on upland glacial till ridges. The Winnecook soils are mainly in a slightly lower position on the landscape than the Thorndike soils. Slopes are smooth and convex.

This unit is fairly well suited for woodland and is suited for both softwood and hardwood production. The main tree species on Winnecook soils are hardwoods. The main tree species on Thorndike soils are shade-tolerant softwoods. The main limitations of this unit are droughtiness and depth to bedrock. Seedling mortality is moderate on the Thorndike soils because of droughtiness. Windthrow hazard is severe on the Thorndike soils and moderate on Winnecook soils; bedrock limits rooting depth, and trees are shallow rooted. Strip cutting or clearcutting will reduce trees exposed to the wind and reduce windthrow.

Ws — Wonsqueak and Bucksport mucks

This level to nearly level unit is in depressions in glacial ground moraine and glaciofluvial deposits and along the edges of lakes and ponds. Areas are oval or irregularly shaped and range from 3 to 200 acres. Slopes are smooth and slightly convex.

This unit is wetland that has potential for controlling floodwaters and erosion, improving habitat for wetland wildlife, and providing recreational opportunities.

This unit is fairly well suited for woodland and best suited for softwood production. The main tree species are red spruce, balsam fir, and red maple. The abundant reproduction of spruce and fir makes these soils well suited for pulpwood production. The main limitations of this unit are plant competition and the high water table. Plant competition is severe on this unit. Site preparation and weeding may be needed to suppress hardwoods. Equipment is difficult to operate on the wetter parts of the unit except during the drier parts of the year or when the ground is frozen.

LuC — Lyman-Tunbridge complex

This nearly level to rolling unit is on the crests and side slopes of upland glacial till ridges. Slopes are mainly convex. This unit consists 40 percent shallow, somewhat excessively drained Lyman soils; 35 % moderately deep, well drained Tunbridge soils; and 25 % other soils.

This unit is fairly well suited for softwood production. The main tree species are red spruce and balsam fir on Lyman soils. On the moderately deep Tunbridge soils and deeper inclusions, northern hardwoods are the main species. The abundant natural reproduction of spruce and fir makes this unit best suited for pulpwood production. The main limitations of this unit are plant competition and depth to bedrock. If this unit is managed for softwoods, competition from hardwoods must be controlled.

TUC — Tunbridge-Lyman complex, 8 to 15 percent slopes

This strongly sloping unit is on the side slopes of upland glacial till ridges. Slopes are mainly smooth and convex, but a few areas are complex.

This unit is fairly well suited for woodland. The moderately deep Tunbridge soils are best suited for hardwood production. The shallow Lyman soils are best suited for softwood production. The main tree species are hardwoods on Tunbridge soils and shade-tolerant softwoods on Lyman soils. If this unit is managed for softwood production, the deeper Tunbridge soils will require considerable management to reduce competition from hardwoods. Both soils have abundant production, especially of spruce and fir. The limitations of this unit are droughtiness and depth to bedrock. Seedling mortality is moderate on the Lyman soils because of droughtiness. Windthrow hazard is severe on the Lyman soils because the low depth to bedrock cause trees to be shallow rooted. Strip cutting or clearcutting will reduce the windthrow damage.

Ws — Wonsqueak and Bucksport mucks

This level to nearly level unit is in depressions in glacial ground moraine and glaciofluvial deposits and along the edges of lakes and ponds.

This unit is wetland that has potential for controlling floodwaters and erosion, improving habitat for wetland wildlife, and providing recreational opportunities.



These are well growing sites and even so harvested in the last 15 years there are still some great looking trees left

Forest Practices Act

In 1989, the Maine Legislature passed L.D. 429 "An Act to Implement Sound Forest Practices." Known more commonly as the Forest Practices Act, the law has several different components. The component that requires you to comply with notification requirements and rules developed by the Maine Forest Service is summarized below.

A form "*Notification of Intent to Harvest Forest Products*" must be filed with the Maine Forest Service, prior to any harvest activity.

After a sale of forest products, a landowner must submit a report to the director of the Maine Forest Service using a form that is sent to the landowner from the Forest Service at the end of the year.

In addition to all these laws rules and regulation, brush, limbs, and tops should be removed a distance of 50 feet or greater from the shoulder of public roads, and 25 feet or greater from property and power lines.

Property lines have to be clearly marked within 250 feet of a harvest or thinning operation.

Aesthetic Considerations

A quick reminder about aesthetics of natural phenomena might be helpful.

Not everything that is dead or dying is ugly and unwanted. Especially large dead and dying trees, whether still standing or lying on the ground, provide essential living space and food for a great number of animals and plants. There is also a lot of hidden beauty and genuine majesty in a large old log lying on the ground. It is fascinating and informative to see a trunk slowly rotting away through years and decades of exposure to the elements and gradually providing living space and nutrition to the next generation of forest inhabitants. We only need to soften our bias to appreciate the beauty of this important natural process.



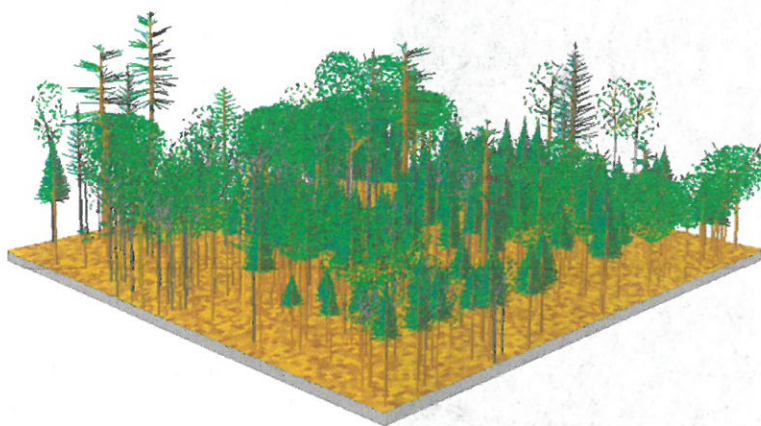
Beauty also can be in the small things

On the other side of the spectrum is a "perfect" tree resistant to insect attack and disease infection that looks very much like a vigorously growing, straight, and symmetrical veneer quality tree of highest economic value. In a natural setting, these are the trees dominating the forest, over-towering and outliving all the other trees in the vicinity. Three, four, or even five feet diameter trunk, 150+ feet high and 400+ years old, these trees command respect. Unfortunately, our economic environment makes it extremely expensive and therefore difficult to grow these giants.

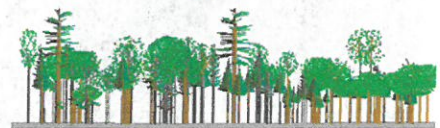
There are also trees with "character". These are trees that have been damaged during their life, and consequently healed and overgrew their wounds. These are the trees fairy tales are made of. Faces, little gnomes, trolls, and elves, and all kinds of awkward looking creatures live in these trees, if you look for them in the malformed shapes and structure of trunk and branches.

Stand Descriptions

Two separate parcels make up the Town Forest. Some of the recommended management actions are similar for both parcels but the physical distance between the parcels suggests treating them as two distinct management units. Aesthetic considerations are very important in the management of both parcels. Economic considerations are important for both parcels in so far as forest management should be self-sustaining. Both parcels should be easily capable to pay management cost from stumpage income.



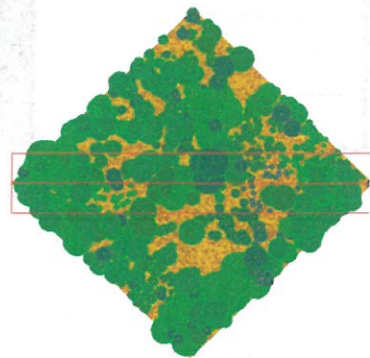
Western Parcel image - representation of actual cruising data (44 plots)
Perspective view, overhead view and frontal view



Frontal view shows all trees in the red area of the overhead view above



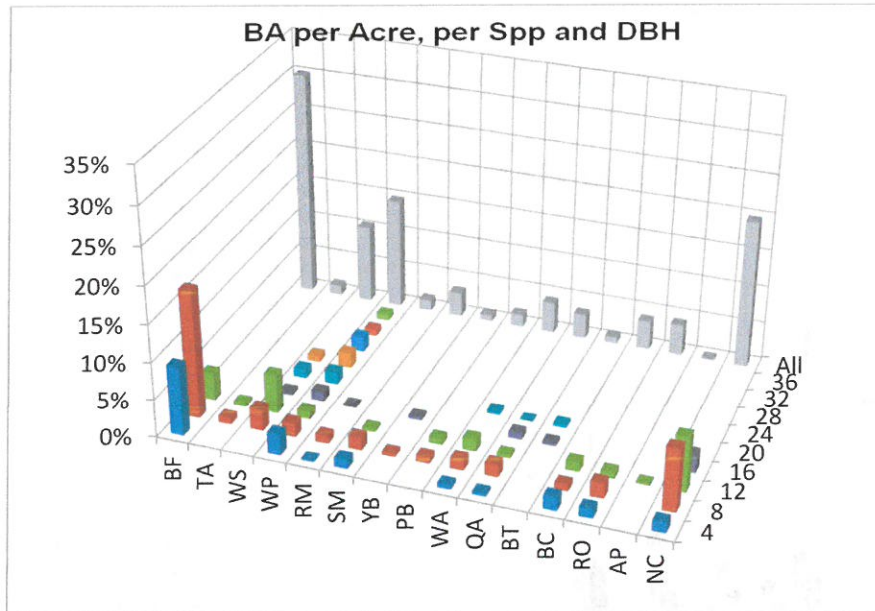
Eastern Parcel image - representation of actual cruising data (33 plots)



The images above show clearly the different character of the 2 parcels. The eastern parcel is more advanced in the succession of a forest towards old-growth showing a more multi aged structure while the western parcel seems to be simpler, more one-layered. The western parcel still has structural diversity with small open areas (ski roads) and a diverse canopy height.

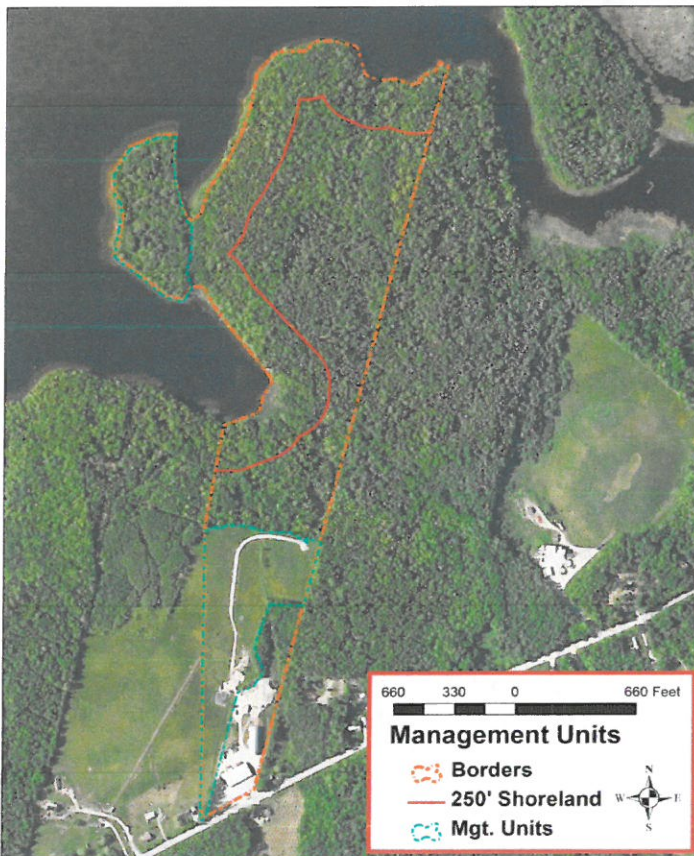
ferent trees species growing. Balsam fir contribute the largest amount followed by white cedar, white pine and red and white spruce. I did not distinguish red and white spruce as spruces can be deceptive as to being red or white.

5. The field and the trees starting to encroach onto the field. Many of the trees growing at the edge of the field are badly weeviled white pines with no economic value.



Trees on western parcel

BF	balsam fir
TA	tamarack
WS	white and red spruce
WP	white pine
RM	red maple
SM	sugar maple
YB	yellow birch
PB	paper birch
WA	white ash
QA	quaking aspen
BT	bigtooth aspen
BC	black cherry
RO	red oak
AP	apple
NC	white cedar



Eastern

Parcel behind Town Garage

Similar to the western parcel, the eastern parcel also has 5 management units.

1. The small very poorly drained peninsula at the middle of the western border. Most of the trees there are of low economic value. A number of apple trees there have high ecological value and are worth pruning and releasing from competition.

2. Along the 250' shoreland zone, management is restricted to the removal of 40% of the basal area and of openings not to exceed 100' X 100'. A nice path is following the shoreline and this area has high potential for great viewsheds. This area has highest recreational value. arcel.

3. All big trees, that is all trees with a DBH of more than 16". Big trees on this parcel are more concentrated along the eastern border. A

Field methods

For the inventory of the property, I took 77 variable prism plots¹⁵ on the two parcels. Forty three plots were taken on the western parcel and 34 plots on the eastern parcel. On these 77 plots I identified, measured, and recorded 524 trees. The error for the mean Basal Area for all plots on the property on the 90% confidence level was 15% for the western parcel and 11% for the eastern parcel.

Volume and Stumpage Prices

The stumpage prices from 2010 to the right are published by the Maine Forest Service using the figures from the harvest reports that have to be filed for all harvests in Maine. #Rpts are the number of reports each of the figures is based on.

Too many variables play into a stumpage sale to come up with an exact figure on the amount of stumpage that may be paid for a thinning. Estimates can be obtained by looking at the using tables and graphs on the previous pages to calculate the stumpage value for different scenarios.

Best Management Practices (BMP)

Best Management Practices is a brochure with guidelines for the reduction of erosion and sedimentation of water bodies (streams, ponds, lakes, rivers, wetlands etc) from logging activities. The Maine Forest Service Policy and Management Division developed these guidelines with the assistance of FORAT (Forestry Advisory Team), an advisory group with broad representation from Maine's forestry community.

The brochure explaining all necessary BMP procedures and guidelines is included with the plan. It is the logger's, operators, and forester's obligation to follow these guidelines. Land-owners also need to be aware of the BMPs for they have the final responsibility that the guidelines are followed in all operations of the property.

Hancock County 2010 stumpage prices

<i>BIOMASS (per ton)</i>	AVG	Min	Max	# Rpts	2009 Avg
All Species	\$2.99	\$0.50	\$6.00	33	\$2
<i>Boltwood (per MBF)</i>					
White Birch	\$123	\$35	\$200	20	\$129
Yellow Birch	\$95	\$70	\$128	6	No Price
<i>Firewood (per cord)</i>					
All Species	\$20	\$8	\$35	39	\$23
<i>PALLETWOOD (per MBF)</i>					
Hardwood	\$70	\$5	\$100	16	\$107
Softwood	\$65	\$12	\$75	10	\$62
<i>PULPWOOD (per ton)</i>					
Aspen/Poplar	\$12	\$3	\$18	27	\$5
Cedar	\$18	\$14	\$18	7	No Price
Hemlock	\$6	\$2	\$10	26	\$9
Mixed Hardwood	\$10	\$2	\$24	56	\$7
Spruce & Fir	\$12	\$2	\$30	85	\$13
White Pine	\$4	\$1	\$7	20	\$4
<i>SAWLOGS (per MBF)</i>					
Ash	\$130	\$25	\$201	18	\$145
Cedar	\$75	\$20	\$120	20	No Price
Hemlock	\$54	\$3	\$113	17	\$62
Red Oak	\$152	\$75	\$200	14	\$171
Red Pine	\$57	\$17	\$100	7	\$42
Red/White Maple	\$109	\$40	\$157	23	\$97
Spruce & Fir	\$122	\$60	\$180	54	\$122
Sugar Maple	\$192	\$45	\$227	18	\$114
White Birch	\$100	\$20	\$160	13	\$159
White Pine	\$175	\$20	\$350	46	\$162
Yellow Birch	\$182	\$50	\$289	20	\$177
<i>STUDWOOD (per ton)</i>					
Other Species	\$12	\$8	\$37	8	\$14
Spruce & Fir	\$23	\$5	\$37	22	\$19
<i>VENEER (per MBF)</i>					
Red Oak	\$523	\$240	\$825	5	No Price
Sugar Maple	\$743	\$564	\$910	6	No Price
White Birch	\$387	\$112	\$602	7	No Price
Yellow Birch	\$634	\$385	\$900	8	No Price

¹⁵ Variable prism plots are a recognized method to select specific trees for computation of stand statistics